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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,208	07/23/2003	Michael E. Farmer	65858-0021	8372

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EXAMINER

LIEW, ALEX KOK SOON

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/22/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/625,208	Applicant(s) FARMER ET AL.	
	Examiner Alex Liew	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 16-25 and 27-31 is/are rejected.
- 7) ☒ Claim(s) 12-15 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 12 – 15 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With regards to claim 12, there is no applicable prior art and / or suggestion disclosing day-night flag value of day *triggers* said sensor image processing subsystem to *perform a day processing* heuristic in combination with claims 1, 8, 9 and 11.

With regards to claim 14, there is no applicable prior art and / or suggestion disclosing day-night flag value of day *triggers* said sensor image processing subsystem to *perform a night processing* heuristic in combination with claims 1, 8, 9 and 11.

With regards to claim 26, there is no applicable prior art and / or suggestion disclosing a *median distance* heuristic is invoked to compute second confidence metric in combination with claim 22.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2624

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 11, 21 – 23, 27 – 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owechko (US pat no 6,801,662) in view of Roehrig (US pat no 6,075,875).

With regards to claim 1, Owechko discloses a classification system comprising a vector subsystem, including a sensor image and a feature vector, wherein said vector subsystem provides for generating said feature vector from said sensor image (see col. 9 lines 27 – 33 and fig 5 – the feature vector generated is from the image input from the imager 5 – 501) and generating classification from feature vector (see previous citation). But fails to disclose a determination subsystem using confidence metric. Roehrig extends classification from only using feature vectors to feature vectors with similar metrics classification. Roehrig discloses a determination subsystem, including a classification, a first confidence metric, and a historical characteristic, wherein said determination subsystem provides for generating said classification from said feature vector, said first confidence metric, and said historical characteristic (see fig 7 – feature vectors are generated from steps 704 – 706 and the first and second similar metric are generated to use for classification and similarity metric with prior view of same breast is read as historical characteristic). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include confident metrics because to determine location of main features of the object in the image from plurality of directions

Art Unit: 2624

to improve classification process (see Roehrig col. 8 lines 53 – 55 and col. 7 lines 12 – 15).

With regards to claim 2, see the rationale and citations for claim 1 (see Roehrig fig 7 – 709).

With regards to claim 3, see the rationale and citations for claim 1 (see Roehrig fig 7 – 710).

With regards to claim 4, Owechko discloses a system of claim 1, wherein said sensor image is captured by a digital camera (see fig 5 – 501 – all images taken by a camera and processed by computer are digital).

With regards to claim 5, Owechko discloses a system of claim 1, wherein said sensor image is in the form of a two-dimensional representation (see fig 5 – 501 – all digital images are two dimension signals).

With regards to claim 6, Owechko discloses a system of claim 1, wherein said sensor image is in the form of an edge image (see fig 5 – 502).

With regards to claim 7, Owechko discloses a system of claim 1, further comprising a airbag deployment mechanism, said airbag deployment mechanism including a

Art Unit: 2624

disablement decision, wherein said airbag deployment mechanism provides for generating said disablement decision from said classification (see col. 3 lines 25 – 51 – the decision is made from classification of the images and includes an enable / disable decision).

With regards to claim 8, Owechko discloses a system of claim 1, further comprising an image processing subsystem, said image processing subsystem including a raw sensor image, wherein said sensor image processing subsystem generates said sensor image from said raw sensor image (see fig 5 – 501 and col. 3 lines 34 – 36 – the raw image is the image create by the digital image sensor).

With regards to claim 9, Owechko discloses a system of claim 8, wherein said image processing subsystem performs a light evaluation to set a brightness value (see col. 5 lines 14 – 27 – when it gets too dark at night more lightings are use).

With regards to claim 10, Owechko discloses a system of claim 9, wherein said sensor image processing sub-system further includes a plurality of processing heuristics, wherein said sensor image processing sub-system provides for selectively invoking one or more of said processing heuristics using said brightness value (see col. 5 lines 14 – 27 – the system maybe use one *or* more active illumination sources, the selectivity is being able to chose one *or* more active illumination sources).

Art Unit: 2624

With regards to claim 11, Owechko discloses a system of claim 9, wherein said light evaluation heuristic is a day-night determination heuristic and said brightness value is a day-night flag capable of being set to a value of day or a value of night (see col. 5 lines 14 – 27 – at day time the imaging system depends on the sun light, so there is not need for lightings so lighting ‘value’ at day time is zero because no illuminations are used, at night time one can use one or more illuminations, so the lighting ‘value’ is one or more than one at night time).

With regards to claim 21, Owechko discloses a system of claim 1, wherein said determination subsystem accesses a historical classification and a historical confidence metric to generate said classification (see fig 7)

With regards to claim 22, see the rationale and rejection for claims 1, 6 – 8.

With regards to claim 23, see the rationale and rejection for claim 10.

With regards to claim 27, see the rationale and rejection for claim 21.

With regards to claim 28, see the rationale and rejection for claims 1, 6 and 9.

With regards to claim 29 see the rationale and rejection for claim 7.

With regards to claim 30, see the rationale and rejection for claim 21.

3. Claims 16 – 18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owechko (US pat no 6,801662) in view of Roehrig (US pat no 6,075,875) as applied to claim 1 further in view of Bailey (IEEE titled "Orthogonal Moment Features for Use with Parametric and Non-Parametric Classifier").

With regards with claim 16, Owechko discloses all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference, but fails to disclose feature vector comprises a plurality of Legendre orthogonal moments.

Bailey discloses a system of claim 1, wherein said feature vector comprises a plurality of Legendre orthogonal moments (see section 2.1 and the paragraph before section 2 – the Legendre Polynomials generated are use for classification). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include feature vector comprises a plurality of Legendre orthogonal moments because it captures the features in two directions which are perpendicular to each other, to find areas of the features in the image which are sharp where edges are close to each other, so to improve classification process.

With regards to claim 17, Owechko discloses all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference, but fails to disclose normalizing feature values. Bailey discloses a system of claim 1, wherein

Art Unit: 2624

said feature vector comprises a plurality of normalized feature values (see section 2.1 – equation shown right before equation 2, $((2n + 1)(2l + 1))/4$ is the normalizing constant).

See the motivation for claim 16.

With regards to claim 18, Owechko discloses all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference, but fails to disclose determination subsystem provides for invoking a k-nearest neighbor heuristic to generate said classification. Bailey discloses a system of claim 1, wherein said determination subsystem provides for invoking a k-nearest neighbor heuristic to generate said classification (see section 4.2). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include invoking a k-nearest neighbor heuristic to generate said classification because to determine the similarities of historical feature vectors with the present feature vectors to find the best match in the classification process.

With regards to claim 19, see the rationale and rejection for claim 18.

With regards to claim 24, see the rationale and rejection for claim 16.

4. Claims 20, 25 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Owechko (US pat no 6,801662) in view of Roehrig (US pat no 6,075,875) and Bailey as applied to claim 19 further in view of official notice (see MPEP 2144).

With regards to claim 20, Owechko discloses all of the claim elements / features as discussed above in rejection for claim 1 and incorporated herein by reference, but fails to disclose calculating Euclidean distance metric. Bailey discloses distance heuristic calculates a Mahalanobis distance metric (see section 4.2 – first paragraph). It is well known in the art to use Euclidean distance measurement to use for matching template in classification process. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include invoking a k-nearest neighbor heuristic to generate said classification because to determine the similarities of historical feature vectors with the present feature vectors to find the best match in the classification process.

With regards to claims 25 and 31, see the rationale and rejection for claim 20.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Liew whose telephone number is (571)272-8623. The examiner can normally be reached on 9:30AM - 7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571)272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2624

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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11/17/06



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